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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,116	04/11/2001	Manabu Takayama	862.C2202	1587

5514 7590 10/10/2003

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EXAMINER

YAM, STEPHEN K

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/832,116	TAKAYAMA ET AL.	
	Examiner	Art Unit	
	Stephen Yam	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 8, 2003 has been entered. Claims 12-16 are currently pending.

Claim Objections

2. Claim 12 is objected to because of the following informalities:
In Claim 12, line 8, "the mold" lacks proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher US Patent No. 3,598,493 in view of Taniguchi et al. US Patent No. 6,255,644.

Regarding Claim 12, Fisher teaches (see Fig. 9) an optical scale having a reflecting portion (143) for reflecting light emitted from a light-emitting portion (142) of a sensor (142, 149) having the light-emitting portion and a light-receiving portion (149) and returning the light to the light-receiving portion, wherein a shaft holding portion (150) (see Col. 10, lines 36-39) of the optical scale which holds a shaft for rotating said optical scale and the reflecting portion are constructed using a transparent resin material (polycarbonate or acrylic- see Col. 4, lines 18-19), said reflecting portion constructed so as to reflect (22) (see Fig. 1) an incident light ray (13) by internal total reflection (see Fig. 1). Fisher does not teach the shaft holding portion and the reflecting portion as integrally molded in one piece using one kind of transparent resin material, or the reflecting portion molded by molding portions arranged on a single surface side of the mold. Taniguchi et al. teach (see Fig. 6a) an optical scale having a disk portion (DS) for interacting with light, wherein a shaft holding portion (DM) of the optical scale which holds a shaft (20) for rotating the optical scale and the disk portion are integrally molded in one piece by using one kind of transparent resin material (polycarbonate or acrylic- see Col. 3, lines 63-66 and Col. 6, lines 51-55), and said shaft holding portion and said reflecting portion are molded by molding portions arranged on a single surface (see Fig. 4a) of a mold. It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrally mold the shaft holding portion and reflecting portion using resin in one piece using one kind of transparent resin material and mold the reflecting portion on a single surface side of the mold in the optical scale of Fisher, to improve the durability and stability of the optical scale while providing an efficient manufacturing process.

Regarding Claims 15 and 16, Fisher in view of Taniguchi et al. teach the optical scale in Claim 12, according to the appropriate paragraph above. Fisher does not teach a bearing or bearing inner ring portion for rotatably supporting said optical scale or a holding member for holding the bearing and the sensor, or the optical scale used in an optical encoder. It is well known in the art to use an optical scale in an optical encoder, to provide positional and rotational distance measurement. Regarding Claim 15, Taniguchi et al. teach (see Fig. 6a) the shaft holding portion coupled to a bearing (DD) inner ring portion for rotatably holding the optical scale (see Col. 6, lines 63-66). Regarding Claim 16, Taniguchi et al. teach (see Fig. 6a) an optical encoder using the optical scale with a bearing (DD) for rotatably supporting said optical scale and a holding member (RH, RE) for holding said bearing and the sensor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to included a bearing/bearing-inner-ring-portion and a holding member as taught by Taniguchi et al. in the optical scale of Fisher in view of Taniguchi et al. and use said optical scale in an optical encoder, to reduce the number of parts for easier manufacture and provide optical system alignment, as taught by Taniguchi et al. (see Col. 4, lines 42-44) and to provide accurate measurements of rotational speed and position.

5. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher in view of Taniguchi et al. as applied to Claim 12, further in view of Nomura et al. US Patent No. 6,055,111.

Fisher in view of Taniguchi et al. teach the optical scale in Claim 12, according to the appropriate paragraph above. Fisher does not teach the shaft holding portion having a closed-

end concave portion or a convex portion fitted on the shaft or a gate for injecting the resin material during molding disposed in the closed-end concave portion or convex portion. It is design choice as to the curvature of the shaft holding portion, depending on the desired configuration. Nomura et al. teach (see Fig. 4) an optical element (30) molded from resin (see Col. 4, lines 38-47) with a gate (50) for injecting the resin material during molding. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a closed-end concave or a convex portion for the shaft holding portion and to use a gate for injecting the resin material as taught by Nomura et al. in the optical scale of Fisher in view of Taniguchi et al., to structure the outline of the optical scale as desired and form the entire scale using injection molding in a common, well-known, cost-effective molding process.

Response to Arguments

6. Applicant's arguments with respect to claims 12-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the


Application/Control Number: 09/832,116
Art Unit: 2878

Page 6

organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY
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September 29, 2003


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800